

CLAIMS

What is claimed is:

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1. A process for straightening a bent crankshaft after hardening, the process comprising:

generating data indicative of a condition of crankshaft straightness;

10 comparing the data to a predetermined tolerance specification to detect an out of tolerance condition;

in response to a detected out of tolerance condition, generating data indicative of location and quantity of the out of tolerance condition; and

15 selectively rehardening the crankshaft as a function of the data indicative of location and quantity of the out of tolerance condition to remedy the detected out of tolerance condition.

2. The process of claim 1, wherein selectively rehardening the crankshaft further comprises:

20 accessing a plurality of predetermined sets of rehardening parameters to identify a set of rehardening parameters correlated to the location and quantity of the out of tolerance condition; and

applying these identified predetermined parameters in the selective rehardening process.

25 3. The process of claim 1, further comprising:

measuring the rehardened crankshaft to detect any out of tolerance condition;

if an out of tolerance condition is detected, applying a set of predetermined rehardening parameters correlated to the newly detected out of tolerance condition; and

30 logging information regarding unsuccessful rehardening attempt as historical record for use in correlating subsequent out of tolerance conditions.

4. The process of claim 1, further comprising:
measuring the rehardened crankshaft to detect any out of tolerance condition; and
5 if an out of tolerance condition is not detected, log information regarding
successful rehardening attempt as historical record for use in correlating subsequent out
of tolerance conditions.

5. The process of claim 1, wherein selectively rehardening the crankshaft
10 comprises selectively induction rehardening the crankshaft.

6. A system for straightening a bent crankshaft after hardening, the system
comprising:
a processing station including a hardening apparatus and a measurement
15 apparatus; and
a controller coupled to the hardening apparatus and the measuring apparatus,
wherein the controller is arranged to receive data from the measurement apparatus,
compare the measurement data to predetermined tolerance specifications to detect an out
of tolerance condition, and control operation of the hardening apparatus as a function of
20 the data to selectively reharden the crankshaft to remedy an out of tolerance condition.

7. The system of claim 6, wherein the controller is further arranged to:
instruct the measurement apparatus to measure the rehardened crankshaft;
detect any out of tolerance condition as a result of the measurement;
25 if an out of tolerance condition is detected, apply a set of predetermined
rehardening parameters correlated to the newly detected out of tolerance condition; and
log information regarding unsuccessful rehardening attempt as historical record
for use in correlating subsequent out of tolerance conditions.

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8. The system of claim 6, wherein the controller is further arranged to:
instruct the measurement apparatus to measure the rehardened crankshaft;
5 detect any out of tolerance condition as a result of the measurement; and
if an out of tolerance condition is not detected, log information regarding
successful rehardening attempt as historical record for use in correlating subsequent out
of tolerance conditions.

10 9. The system of claim 6, wherein the controller is arranged to correlate the
received measurement data to a plurality of sets of predetermined rehardening parameters
to identify a set of rehardening parameters correlated to the location and quantity of the
out of tolerance condition, and apply the identified predetermined parameters as
instructions for the hardening system to use in the selective rehardening process.

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10. The system of claim 6, wherein selectively rehardening the crankshaft
comprises selectively induction rehardening the crankshaft.